

REMARKS

Claims 4, 23-26, and 28-32 have been canceled by the present amendment without prejudice or disclaimer of the subject matter therein and claims 33-34 have been added. Therefore, claims 1-3, 5-22, 27, and 33-34 are pending in the present application. Claims 1-3, 5-7, and 27 have been amended. Support for the amendment to independent claim 1 and for new claims 33 and 34 can be found, *inter alia*, in paragraph 21 of the present application on pages 8-9.

In the Office Action, objections to the specification were made, claims 1-7, 23-29 and 32 were rejected under 35 U.S.C. §112 first paragraph, claims 1-7, 23-29, and 32 were rejected under 35 U.S.C. §112, second paragraph, claims 1-7, 23-29, and 32 were rejected under 35 U.S.C. §102(e), claims 1-7, 23-29, and 32 were rejected under 35 U.S.C. §102(a) or in the alternative under 35 U.S.C §103(a). Several claims have been canceled by the present amendment and therefore without addressing the merits of the rejections, Applicant submits that such rejections are rendered moot with respect to these claims.

Objections to the Specification

The abstract was objected to because it was allegedly too long. Applicant points out that the abstract was within 150 words as required by 37 C.F.R. §1.72. Nonetheless, Applicant has shortened the abstract and has removed phrases such as "comprising" and "said." Accordingly, Applicant requests withdrawal of this objection.

The specification was also objected to because the status of application serial no. 09/705,187 at page 9, line 9 is missing. Applicant has amended the specification to provide the status of this application.

Other Amendments to the Specification

The specification of the present application has been amended to contain a priority reference to U.S. Provisional Application No. 60/225,363 in accordance with 37 C.F.R. §1.78 (a)(5). As indicated by MPEP §201.11(III)(D), because the claim of priority was included in the declaration filed on November 26, 2001 (and therefore within

four months of the filing date of the present application) and was recognized by the PTO as shown by the inclusion of the priority claim on the filing receipt, a petition under 37 CFR §1.78(a) has not been submitted in the present application.

Rejection of Claims under 35 U.S.C. §112, first paragraph

Claim 1-7, 23-29 and 32 stand rejected under 35 U.S.C. §112, first paragraph. According to the Examiner, the specification fails to describe which biomolecules can be made singly or in combination with one another to form an array and that a single array can include millions of the same or different molecules and that the specification does not describe which of these different molecules have been made into a single array. The Examiner concludes that a mere listing of the components of an array does not equate to a specific description of the biomolecules collectively.

As an initial matter, Applicant points out that according to the "Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, P1" 'Written Description' Requirement" 66 FR 1099 (January 5, 2001), there is a strong presumption that an adequate written description of the claimed invention is present when the application is filed.

Secondly, Applicant points out that the claims are directed to a method of detecting modification of a target member of a biochemical pathway. Applicant is not claiming the biomolecules themselves. Accordingly, the first group of biomolecules that are immobilized on the substrate can be any biomolecules so long as at least one of the biomolecules is a target member of a biochemical pathway, as recited in the amended claims. Applicant has also specified the identify of the biomolecules in solution in the amended claims- *i.e.* that the biomolecules in solution are additional members of the biochemical pathway that are capable of binding to the target biomolecule. Independent claim 1 has further been amended to recite that a step of the method comprises allowing binding of at least one of the additional members of the biochemical pathway to the target member of the biochemical pathway, wherein the binding results in modification of the target member of the biochemical pathway. As noted by the Examiner, Applicant has described the terms "biochemical pathways" "modification" "array" and "biomolecules in solution" in the specification. Applicant has listed several examples of the types of

pathways, the types of biomolecules, and the types of modifications to be analyzed. The specification also fully describes how to perform each step of the claimed invention in the specification. For examples the specification describes various ways in which the biomolecules can be immobilized in arrays (*see e.g.* ¶s 21, 26, 29, 57, 60, 61, 68, 69, 70), various ways in which the array of biomolecules can be exposed to biomolecules in solution (*see e.g.* ¶32), and various ways of how to detect modifications of the target member of the biochemical pathway (*see e.g.* ¶s 38, 112). Accordingly, it is Applicant's position that there is sufficient written description of a method of detecting modification of a target member of a biochemical pathway as recited in independent claim 1 (and all claims that depend therefrom).

Rejection of Claim Under 35 U.S.C. §112, second paragraph

Claims 1 and 23 stand rejected for allegedly being incomplete for omitting essential steps. Without addressing the merits of this rejection, Applicant submits that the amendment to claim 1 renders this rejection moot. Specifically, the preamble of claim 1 has been amended to recite a "method for detecting modification of a target member of a biochemical pathway." The steps of claim 1 include "allowing binding of at least one of the additional members of the biochemical pathway to the target member of the biochemical pathway, wherein the binding results in modification of the target member of the biochemical pathway." Claim 1 then recites, "detecting modification of the target member of the biochemical pathway." Therefore, Applicant submits that there is a "nexus" between the preamble and the body of the claims.

The Examiner also objected to the phrase "and/or" in the claims for being allegedly indefinite. This phrase has been removed from claims 7 and 27 and replaced with the word "or." Since the claims recite the open-ended language of "comprising," it is understood that the claims do not exclude other additional steps. For example, claims 7 now recites "[t]he method of claim 1, wherein detecting modification comprises the additional step of qualitatively or quantitatively determining the level of activity of the target member of the biochemical pathway based on the modification thereof." This does not exclude qualitatively and quantitatively determining the level of activity of the biomolecules.

The Examiner also rejected claims 2, 3, 24, and 25 as being allegedly indefinite as to the metes and bounds of the different types of immobilized biomolecules. As mentioned earlier, the biomolecules in the array and the biomolecules in the solution can be any biomolecules so long as at least one of the biomolecules of the array (the first group of biomolecules) is a target member a biochemical pathway and the biomolecules in solution are additional members of the biochemical pathway that are capable of binding the target member of the biochemical pathway.

Claims 4-7 and 26-29 stand rejected for allegedly being indefinite because they "broaden the base claim 1, which recites for detecting the immobilized biomolecule." With respect to claims 5-7 and 27-29, the steps of identifying the function, the quantity, the level of activity, and the affinity or avidity of the biomolecules are different aspects of detecting the modification of the biomolecules as clarified by the amendments to these claims, and therefore properly depend from independent claim 1. Applicant therefore requests withdrawal of this rejection.

Rejection of Claims Under 35 U.S.C. §102 and §103

Claims 1-7, 23-29, and 32 stand rejected under 35 U.S.C. §102(e) as being allegedly anticipated by U.S. Patent Application No. 2001/0053520 to Borrebaeck ("Borrebaeck"). The present application claims priority to U.S. Provisional Application No. 60/225,363, which was filed on August 14, 2000. Applicant therefore submits that Borrebaeck, which was filed on March 16, 2001, is not prior art to the present application and Applicant therefore requests withdrawal of this rejection.

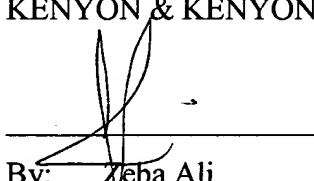
Claims 1-7, 23-29, and 32 stand rejected under 35 U.S.C. §102(a) as being allegedly anticipated by or rendered obvious under 35 U.S.C. §103(a) by U.S. Patent No. 6,232,066 to Felder ("Felder"). The present claims have been amended to recite the step of "placing a polymer gel mask defining openings in contact with a substrate to create exposes and unexposed areas of the substrate" and "exposing the substrate to a first group of biomolecules to immobilize the first group of biomolecules in the exposed areas of the substrate." Felder does not teach or suggest placing a polymer gel mask defining openings in contact with a substrate and then exposing the substrate to a first group of biomolecules to immobilize the first group of biomolecules in the exposed areas of the

substrate. In fact, Felder teaches away from using a polymer gel mask as it states, "individual regions can further be defined by overlaying a structure (e.g. a piece of plastic or glass) which delineates the separate region." See col. 5, lines 33-35. Therefore, Felder teaches using rigid materials to form delineate separate regions, instead of a polymer gel mask, as recited in independent claim 1. Furthermore, once the regions are delineated, Felder makes absolutely no mention of exposing the regions to a first group of biomolecules to immobilize the first group of biomolecules in the exposed areas of the substrate. For at least these reasons, Applicant submits that independent claim 1 (and all claims that depend therefrom) are neither anticipated nor rendered obvious by Felder and Applicant accordingly requests withdrawal of this rejection.

It is respectfully submitted that the present application is now in condition for allowance, which action is respectfully requested. The Examiner is invited to contact Applicant's representative to discuss any issue that would expedite allowance of the subject application. Any fees for extension(s) of time or additional fees that are required in connection with the filing of this response, such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is authorized to charge any such required fees or to credit any overpayment to Kenyon & Kenyon's Deposit Account No. 11-0600.

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Respectfully submitted,
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